Volunteer Firemen

Professional Journal of the Volunteer Firemen's Section

The advantage of an elevated viewpoint in taking photographs of fires is exemplified in this picture. While few fire photographers will have the use of an airplane, they can usually seek a point of vantage which is better than standing on the ground level.

How to Take Pictures of Fires

Also in this issue—Friction Loss with Heavy Streams!
New National Fire Codes Volume—Big Fires of 1937

Volume 3, Number 2 BOSTON, MASSACHUSETTS February 1938

National Fire Protection Association

INTERNATIONAL

PROTECT YOUR VOLUNTEERS

(International News Photo)

Four Firemen Seriously Injured

WITH OUR DEPENDABLE

VOLUNTEER FIREMEN'S

GROUP ACCIDENT POLICY

BEFORE IT'S TOO LATE.

1.

THE PLAN

Volunteer Fire Departments are composed of men who voluntarily sacrifice life and limb and expose themselves to serious injury while braving the extreme hazards of fire fighting.

No man can afford to subject himself and his dependents to financial loss, and no municipality can afford to bear the burden of unlimited financial responsibility, occasioned by this extreme hazard. Our Volunteer Firemen's Group Accident policy successfully and economically meets this protective need and is being widely sought.

2.

THE PROTECTION

This coverage pays for loss of life, limb or sight, or a weekly benefit in the event of disability caused by an accident occurring to a Volunteer Fireman while going to or returning from fires, while fighting fires, while on parade or while engaged in any bona fide duty of a Volunteer Fireman. No list of Volunteer Firemen is required, inasmuch as every fireman on the roster is automatically covered. Paid firemen, who are almost continually on duty at the firehouse, likewise are covered exclusively at fires or while en route to and from an alarm.

3.

THE PRICE

This protection is made available at low cost by the principle of collective bargaining. This means that a *group* of Volunteer Firemen can secure better accident protection at lower cost than on an individual basis because of their united participation.

We make a flat premium charge for each Fire Department on an annual premium basis.

Municipalities find the cost of this coverage to be negligible as compared to the liability incurred by an accident.

INSURE YOUR VOLUNTEER FIREMEN TODAY

You can purchase this worthwhile protection through any one of the local agents you care to designate.

THE METROPOLITAN CASUALTY INSURANCE COMPANY OF NEW YORK
COMMERCIAL CASUALTY INSURANCE COMPANY

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LOYALTY GROUP COMPANIES

HORATIO BOND Managing Editor

Warren Y. Kimball Associate Editor

Volunteer Firemen

Volume 5 Number 2

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An enclosed pumper designed by Captain Everett Hudiburg, Oklahoma A & M College, Stillwater. (Below)

LAST month's story on the 1937 fire schools showed that they were attended by over 50,000 firemen. Last month, also, the Memphis, Tennessee, Fire Department was host to the directors of these schools and other key men in the training programs of 26 states. The Memphis firemen were joint sponsors for the conference with the Fire Prevention Department, Western Actuarial Bureau of Chicago. While the meeting had a strong middle western complexion, among the more than 200 attending were fire school officials from as far away as Florida and Utah.

This particular conference has been held annually for 10 years, the first at Chicago, later at the St. Louis fire headquarters and the last four of them at Memphis whose geographical advantages are convenient for those attending and which has a climate favorable for a mid-winter meeting. No ordinary convention or meeting, the attendance is one specially invited. Richard E. Vernor, Manager, Fire Prevention Department, Western Actuarial Bureau, serves as chairman and is assisted by members of his staff and by Chief Irby Klinck and the officers and men of the Memphis Fire Department. Sessions are held at the assembly room in fire headquarters and at Memphis' modern drill tower (shown in the cover picture of last month's issue).

Speakers included the directors of state firemen's schools in Florida, Illinois, Indiana, Maryland, Michigan, Texas and West Virginia. Under Captain A. J. Schaefer of Memphis, drillmasters from large and small cities, notably Chicago, Detroit, Denver, Kansas City, Louisville, Dallas, Fort Worth, Stillwater, Oklahoma, and Downers Grove, Illinois, handled details of the drill program. A valuable exchange of ideas was effected by the meeting which should have a profound effect on the training work done in most states and in many cities.

LAST month 16 departments with 335 men joined the Volunteer Firemen's Section for the first time, the largest number since last June. In addition 59 fire departments with 1308 men renewed membership bringing the total for the Section to 548 departments and 12,194 firemen. The following departments are newly enrolled:

Santa Paula Fire Department, Santa Paula, California.

Frankfort Volunteer Fire Department, Frankfort, Kansas.

Mulvane Fire Department, Mulvane, Kansas.

Triumph Hose Company No. 1, Berwick, Maine.

Snow Hill Volunteer Fire Company, Snow Hill, Maryland.

Roxbury Chemical Engine Company No. 1, Succasunna, New Jersey.

Taos Volunteer Fire Department, Taos, New Mexico.

Elmont East End Chemical Engine and Hose Company, Inc., Elmont, N. Y.

Firemen's Association of the State of New York, Fort Edward, N. Y.

Wooster Firemen's Association, Wooster, Ohio.

Pocasset Fire Engine Company, Cranston, Rhode Island.

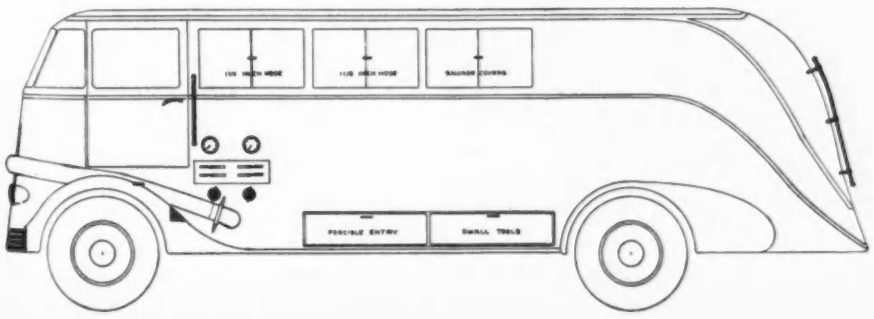
Firemen's Volunteer Brigade, Gravelbourg, Saskatchewan.

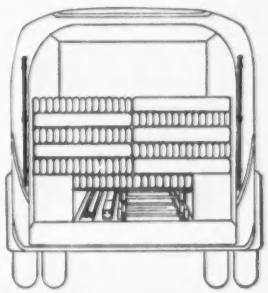
Lancaster Fire Department, Lancaster, South Carolina.

Milton Fire Department, Milton, Vt.

Waverly Volunteer Fire Department, Waverly, Virginia.

Kiel Fire Department, Kiel, Wisconsin.





How to Take Pictures of Fires

Fire Photography Can Be Mastered by Amateurs If They Have Proper Tools and Know How to Use Them

MANY cameras go to fires, but too few come back with pictures of value. Although fire photography is one of the most exacting fields for the camera, it is not beyond mastery by any amateur who is willing to select his tools properly and learn to use them with judgment. So says A. L. Armstrong (Member N.F.P.A.), whose suggestions are digested following.

In covering a fire, the photographer should seek to make a complete pictorial record. The pictures he takes will depend to some extent on their purpose —that is, whether they are to be used in fire prevention study, departmental training, or other fields. But the rule is the same: the fire should be completely covered because a picture not snapped is a picture lost.

Good fire photography begins with the selection of a suitable camera and accessories. The camera need not be an expensive one, but it must fulfill certain requirements. The lens should be a sharp-cutting anastigmat, so that negatives can be enlarged for study of detail. It should have a speed rating of f.4.5 or better, so that it can be of service any hour of day under all weather conditions. The shutter should have a full range of speeds from one to 1/250 second or faster. The slow speeds are useful under poor light conditions and high speeds are valuable when rapid movement must be "frozen". The negative size is largely a matter of choice. If the photographer is limited to one camera, the 1⅝ x 2½ "vest pocket" size, or the 2¼ x 3¼ size with f.3.5 or f.4.5 lens, and shutter speeds to 1/250 second or more, is preferable.

Certain accessories are nearly as important and a full day-and-night kit should include: A compact folding tripod. A range finder to aid in focusing. A dependable exposure meter. A portrait attachment or set of lenses to aid close-up work. A lens hood (sun shade), which should always be in place whenever a picture is snapped. A small pocket flashlight. Photoflash bulbs and holder or synchronizer, with an extension cord.

Where only one camera is to be used, there is but one film that the fire photographer need consider. That is speed film of the supersensitive panchromatic type. This film has several advantages in fire work over the usual amateur types. The extra speed is a major virtue, permitting briefer exposures. Speed differences are more marked toward the end of the day and at night by artificial light.

It should hardly be necessary to insist that a photographer learn his camera thoroughly and train himself in rapid, facile operation of it. Most would-be photographers neglect this and wonder why their pictures turn out so poorly. The photographer should also study exposure, and rapid determination of a subject. Exposure guesses can be checked easily with an inexpensive exposure meter. Experiments with distance and viewpoint on buildings of various sizes will give an index of the camera's scope, so that when approaching a fire he can decide from what distance and what angle his first general views should be taken. Do not waste film by snapping at too great a distance; the details must show.

A good example of what can be done under dull light. Ample exposure, and judicious use of light from the fire itself, produced a negative with detail all over—despite the fact that it was deep twilight when the picture was made. The picture is good in that it demonstrates clearly the condition of the structure and the circumstances of the fire fighting.

FIRES will vary infinitely, but general procedure can be much the same for all. First, there must be inclusive views, showing as much of the scope of the fire as possible. Detail views can be utilized to demonstrate how the fire was fought. There should be steady progress from the general to the particular; down to extreme close-ups of the fire sources if they can be determined.

Weather conditions and smoke are complicating factors well beyond the photographer's control. During rain the lens surface must be protected from stray drops: the lens hood is a help here. Falling snow is troublesome at slow shutter speeds. Smoke is an ever-present problem, particularly when atmospheric conditions make it hover low. A yellow filter on the camera will help cut through a very light smoke haze, but a dense pall is impenetrable. A lens hood is particularly imperative in smoke or haze.

Correctly timed exposure under bad weather conditions is not a difficult problem. Only three factors are involved—the strength of the available light, the lens opening, and the shutter speed. As a rule, the fire photographer should give as full an exposure as conditions permit. It is sound practice to use the exposure meter regularly, and when that is impossible, to give a bit more exposure than the scene apparently needs. Full exposure is the only practical way to obtain clear-cut shadow detail in fire pictures.

Full exposures are recommended for two reasons. First, the fire photographer cannot risk underexposure. Second, his pictures must show full detail all over if they are to be a complete record. Especially should the photographer liberalize his exposure when lighting is harsh—as in noon sunlight—and when it is extremely weak, as toward twilight.

Good cameras have a full range of lens openings and shutter speeds. This is to provide for "action" pictures and extreme close-ups. High shutter speeds must be used when there is rapid movement in the picture, such as a falling wall or men running. A small lens opening should be used in close-up work on still subjects, because the smaller the opening, the more depth of focus the lens has.

An excellent picture for several reasons, illustrating weaknesses of an open fire escape, character of the fire, need of ventilation, and the way in which the elevated structure interferes with the fire fighting. It is a night picture, taken with flash powder, which has a tendency to "burn out" detail in any objects close to the camera. Note white foreground here.

IN SHOOTING action subjects the best rule is to have the lens "wide open" and use as high a shutter speed as the light permits. In taking pictures of this sort in bad light, the photographer must decide which is more important—sharpness or shadow detail. If sharpness is imperative, he can often afford to increase his shutter speed, thereby reducing exposure and sacrificing shadow detail, but getting a picture quite without blur.

Night photography of fires involves so many variables that it is impossible to offer a set of rules. The extent and temperature of the fire, the amount of general illumination from street lighting, reflecting surfaces like wet streets and snow, floodlights used by the fire department, all play a part. If the photographer requires detail in a general fire scene at night, flash bulbs may assist him. Under no circumstances use flash powder when there are flying sparks. When the photographer works with such general light as is available, his best recourse is to set up the camera on a tripod and give a series of "time" exposures with lens wide open. For example, with an f.3.5 lens exposures of 1, 3, 5, 10, and 30 seconds. When a building is outlined in fire, or a wall silhouetted against fire, it is possible to record flames alone with snapshot exposures of 1/10 to ½ seconds at f.3.5. Time exposures of 3 to 5 seconds at f.8 give about the same result. When not using a tripod, rest the camera on some solid support like a fence of automobile fender, while the brief exposure is made. Focus carefully, for an out-of-focus fire picture is worthless.

A Problem Question
FOR FEBRUARY

Suggested for discussion at company and department meetings this month

75

How do you keep track of the time worked by men at forest and brush fires?

Watch for the answer in the next issue of VOLUNTEER FIREMEN. The answer to the problem question for January will be found on page six.

Friction Loss With Heavy Streams!

With Two or Three Lines Siamesed You Can Obtain More Powerful Streams and Hold Down Unwanted Friction Losses in Fire Hose

By Warren Y. Kimball

GOOD fire streams are seldom obtained through guesswork. Each size nozzle will turn out a definite amount of water at a stated pressure. The pump operator must supply the proper pressure to get good results. It's not necessary to be a wizard at figures to make the rough calculations which are needed to insure good streams under usual fire conditions.

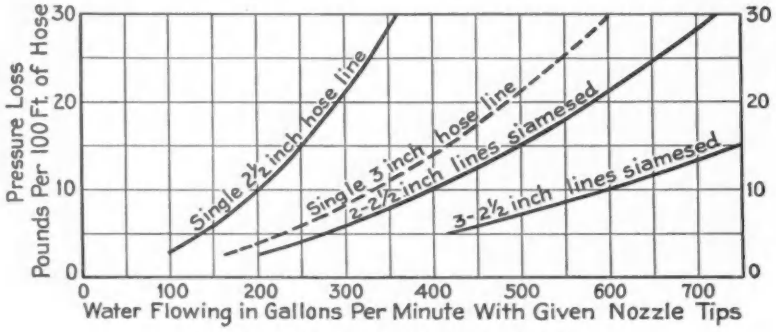
There are limits to the amount of water that a given size of hose will carry without resulting in excessively high friction loss. In the case of 2½-inch hose the best figure to remember is the amount of water discharged by a 1¼-inch nozzle at 45 pounds pressure, or about 310 gallons per minute. This discharge results in a friction loss of 22.5 pounds in each 100 feet of hose.

STANDARD pumpers are designed to deliver their rated capacities at 120 pounds pump pressure. As the pressure is increased above this figure the amount of water which the pump can discharge is reduced. With a 1¼-inch tip operating at 45 pounds nozzle pressure a 300 foot line of 2½-inch hose would require a pump pressure a little under 120 pounds. As it is customary to allow a few pounds leeway to take care of differences in elevation between the pump and the nozzle, the practical limit of a single 2½-inch line supplying a 1¼-inch tip is about 300 feet. Of course pumper capacities are figured at draught and if the hydrant pressure is good it would be possible to supply a somewhat longer line without reducing the nozzle size.

FRICTION LOSS AND DISCHARGE
Heavy Fire Streams

	Single Line 2½ inch Hose	Single Line 3 inch Hose	2 Lines 2½ inch Hose Siamesed	2 Lines 2½ inch Hose Siamesed	3 Lines 2½ inch Hose Siamesed
Size of nozzle tip in inches	1¼	1¼	1¼	1½	1½
Nozzle pressure in pounds per square inch	45	45	45	80	80
Discharge in gallons per minute	310	310	310	600	600
Friction loss in pounds per 100 feet	22	8	6	21	10

When it is necessary to supply heavy streams through 2½-inch hose it is possible to greatly reduce the friction loss by siamesing two or more lines into a single stream. For example, with two 2½-inch lines supplying a single 1½-inch nozzle operating at 80 pounds nozzle pressure and throwing 600 gallons a minute, the friction loss is the same as that of a single line of 2½-inch hose supplying a 300 gallon stream at the usual hand line pressure. Where a 600 or 700 gallon per minute deluge set or wagon gun stream must be supplied by lines more than 300 feet long it is desirable to siamese three 2½-inch lines together to reduce the friction loss. With a 600 gallon per minute stream supplied by three siamesed 2½-inch lines the friction loss is only 10 pounds per 100 feet of hose.

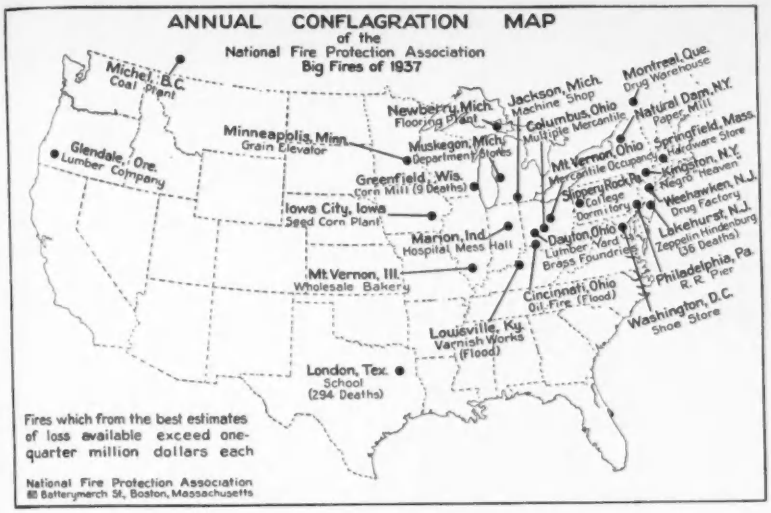


COMPARATIVE FRICTION LOSSES
Single and Siamesed Lines

An interesting graph to visualize friction loss calculations suggested by Raymond Schuermann, Engineer, Missouri Inspection Bureau.

IN ADDITION to supplying heavy streams, there is another important use for siamesed lines. Where long lines are necessary as at many rural fires, it is often desirable to employ siamesed lines to reduce the friction loss, rather than resort to the use of smaller nozzle tips. For example when it is necessary to supply a single 800 foot line of 2½-inch hose having a 1¼-inch tip operating at 45 pounds nozzle pressure, the friction loss would be about 180 pounds. However, by siamesing two 2½-inch lines, the friction loss would be reduced to only 50 pounds in 800 feet of hose and with the 45 pounds nozzle pressure added the pump pressure would be only 95 pounds. If there is not enough hose available to lay parallel lines the entire distance between the pumper and the nozzle, it will be found that use of siamesed lines for even half of the distance will greatly reduce the friction loss.

IN SOME fire departments the friction loss problem is met by the use of 3-inch hose for heavy streams. As shown by the accompanying chart the friction loss in 3-inch hose is comparatively small as the larger hose can carry nearly twice the amount of water that 2½-inch hose can carry. With 300 gallons per minute flowing, the friction loss in 3-inch hose is only about 8 pounds per 100 feet as compared with 21 pounds friction loss in 2½-inch hose. It takes a flow of 500 gallons per minute to cause 21 pounds friction loss in 3-inch hose. With 3-inch hose it is practicable to supply longer lines having 1¼-inch nozzle tips.


ANNUAL CONFLAGRATION MAP
of the
National Fire Protection Association
Big Fires of 1937
Michel, B.C. Coal Plant
Glendale, Ore. Lumber Company
Minneapolis, Minn. Grain Elevator
Newberry, Mich. Flooring Plant
Jackson, Mich. Machine Shop
Columbus, Ohio Multiple Mercantile
Montreal, Que. Drug Warehouse
Natural Dam, N.Y. Paper Mill
Springfield, Mass. Hardware Store
Muskegon, Mich. Department Stores
Mt. Vernon, Ohio Mercantile Occupancy
Greenfield, Wis. Corn Mill (9 Deaths)
Slippery Rock, Pa. College Dormitory
Kingston, N.Y. Negro "Heaven"
Weehawken, N.J. Drug Factory
Iowa City, Iowa Seed Corn Plant
Marion, Ind. Hospital Mess Hall
Dayton, Ohio Lumber Yard & Brass Foundries
Lakehurst, N.J. Zeppelin Hindenburg (36 Deaths)
Philadelphia, Pa. R.R. Pier
Mt. Vernon, Ill. Wholesale Bakery
Cincinnati, Ohio Oil Fire (Flood)
Washington, D.C. Shoe Store
Louisville, Ky. Varnish Works (Flood)
London, Tex. School (294 Deaths)
Fires which from the best estimates of loss available exceed one-quarter million dollars each
National Fire Protection Association
60 Batterymarch St., Boston, Massachusetts

Big Fires of 1937

Number of Major Fires Much Reduced—Total 1937 Losses in U. S. Estimated $284,500,000

THE above "Conflagration Map" shows the locations of the big fires which caused losses of $250,000 or more each last year. There were 23 such fires in the United States and 2 in Canada according to the N.F.P.A. Department Fire Record. This represents a substantial decrease in the number of big fires from 1936 when there were 42 fires in the United States and one in Canada which caused losses of a quarter million or more dollars.

While the year 1937 saw the smallest number of these huge blazes since 1933, there are still far too many in the opinion of fire protection engineers. When you begin figuring up losses at $250,000 or more apiece, you soon run into big money. Three of these big fires caused losses of over $1,000,000 each, and four others caused losses of $500,000 or more. Such fires obviously form a generous part of the annual fire loss which is estimated to have been $284,500,000 in the United States last year.

In addition to the monetary loss, several of the great fires of the past year caused extensive loss of life. The greatest fire tragedy of 1937 was the loss of 294 lives in the gas explosion which wrecked the new $300,000 school building in London, Texas, on March 18 (see May, 1937, VOLUNTEER FIREMEN).

The largest fire, measured in dollars, was the one which destroyed the Zeppelin *Hindenburg* at Lakehurst, N. J., on May 6, with a loss of 36 lives. The property loss was $3,750,000. As reported in the June, 1937, VOLUNTEER FIREMEN, many volunteer departments rendered assistance at this disaster.

Nine lives were also lost in the second largest fire of the year which started with an explosion in a mill at Greenfield, Wisconsin, on April 10, and caused $1,250,000 loss.

In many of the big fires of the past year volunteer firemen had a personal interest because at least a third of the blazes were fought by volunteer companies. In addition volunteers gave valuable assistance at several of the big city fires by covering unprotected areas.

The factor most often contributing to the large fire losses reported was inferior building construction. This includes excessive open areas, lack of protection for stairways, shafts, windows and other openings through which fires spread. Large amounts of highly combustible contents of buildings also contributed to the big fires.

Obviously where huge values are at stake private fire protection such as automatic sprinklers and fire alarm equipment backed up by strong public fire protection is very important. It is interesting to note that one half of all the big fires occurred on Saturday or Sunday when most business activity is suspended, which shows the importance of good watchmen and automatic fire alarm and sprinkler service to overcome frequently delayed alarms.

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belong in every engine house. They are the quickest, best way to put out rubbish, grass, awning, roof and spot fires. No need to lay hose. Five gal. Pumps use clear water only. Throw a 50 ft. stream. Carry on back or by handle. Built strong. INDIANS are used and endorsed by fire departments all over the U. S. Write for catalog and prices.

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—G. M. EBERHARDT,
Oakhurst, Ind. Fire Dept.

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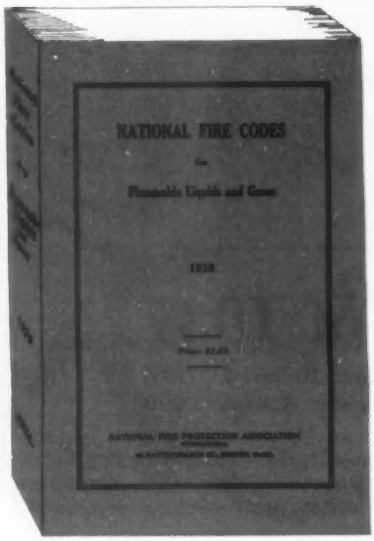
The National Fire Codes

Every Fire Department Will Need New 360 Page Volume of Authoritative Regulations on Flammable Liquids and Gases

By Robert S. Moulton
Technical Secretary
National Fire Protection Association

WITH the January Quarterly Magazine, N.F.P.A. members including many volunteer fire departments are receiving a new book entitled "National Fire Codes for Flammable Liquids and Gases". This book contains 360 pages and includes 36 authoritative standards and regulations giving fire protection authorities complete information on the safe handling of both flammable liquids and gases. The volume has been prepared in response to requests from N.F.P.A. members whose work calls for the use of N.F.P.A. standards on a variety of subjects and who find it increasingly difficult to keep track of the numerous separate standards when printed in the small pamphlet form. Furnished to all N.F.P.A. members without extra charge it is a further addition to the extensive service given to all N.F.P.A. members, at a membership cost which is very moderate for a technical organization. There is no thought of abridging the publication of the separate standards in small pamphlet form to meet the needs of users who want only one or two standards.

FIRE department officials will find this new book one of the most valuable in their library. For example just one of the important codes it contains is a complete "Flammable Liquids Ordinance", which is in a form suitable for adoption as a municipal ordinance representing reasonable precautions for safeguarding the hazards involved in the storage and use of flammable liquids. This ordinance was first published in 1913 and has been frequently revised since that time to keep it up to date. The latest edition was issued in 1937. Of special interest to many firemen who had to fight fires resulting from the great floods last year is an appendix to the Flammable Liquids Ordinance containing recommended safeguards and safe practices for the protection of tanks containing flammable liquids in flooded regions. Another feature of the new volume which will interest many firemen, is the section "Odorization of Gas", which points the way toward prevention of disasters such as that which caused a loss of 294 lives in the New London, Texas, school during March 1937.



New N.F.P.A. book "National Fire Codes for Flammable Liquids and Gases", contains 360 pages 6 in. by 9 in. and includes 36 complete codes.

THE size of the "National Fire Codes" volume is an impressive exhibit of the extent of a single segment of N.F.P.A. technical committee activities. In the past 40 years the National Fire Protection Association in performance of its function of developing and making available information on the safeguarding of life and property against loss by fire has prepared over 150 comprehensive standards on various phases of fire prevention and fire protection. These have been issued in the form of codes, advisory regulations, recommended good practice requirements and suggested ordinances. Irrespective of their form, the various codes are purely advisory as far as the N.F.P.A. is concerned, but are widely used as a basis of law, or as a guide by administrative authorities in the exercise of their discretionary powers.

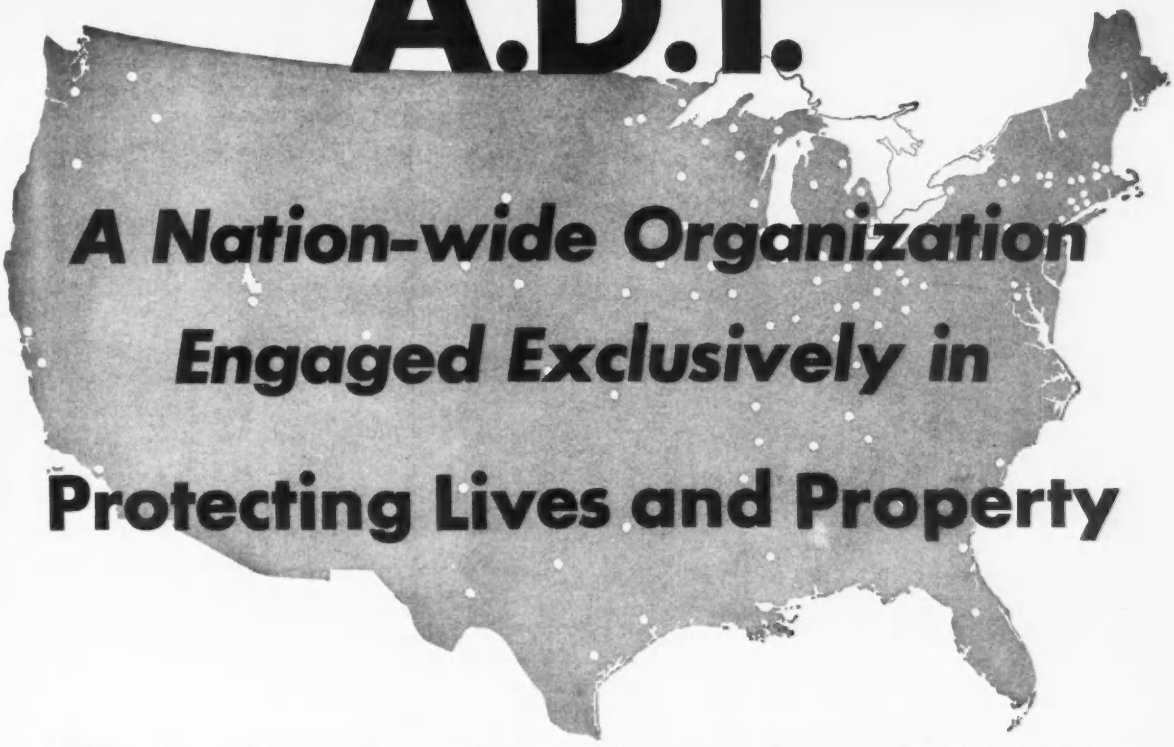
The 36 standards assembled in the present volume are only those dealing with flammable liquids and gases. The history of each standard is given in the introductory note preceding it. There is also information as to its availability in separate pamphlet form. If all of the current N.F.P.A. standards could be similarly published in book form, the total number of items would be three times as great and there would be an even greater proportional increase in the number of pages.

IN PREPARING each standard, such as those included in the new volume, the aim of the N.F.P.A. committees has been to specify measures that will provide reasonable fire safety without prohibitive expense, interference with established industrial processes and methods, or undue inconvenience. In other words the standards are entirely practical. The technical committees which prepare them are organized to include not only fire protection authorities, civic organizations and insurance groups, but also include the various business interests affected by the regulations. The machinery of the Association is designed to give consideration to any individual or group interested in any detail of a report. After a report has been given advance circulation for the purpose of obtaining comment, the Association receives the tentative code in an annual convention, at which time there is opportunity for further discussion by interested individuals prior to the vote of the Association on the adoption of the report.

The committees are always ready to receive suggestions for amendments of the various standards, and new editions are adopted periodically to keep the texts up to date. New standards are developed from time to time to cover new developments in industry and invention. A complete list of the publications of the Association, including standards on fire extinguishing equipment and methods, building construction and equipment and other subjects not covered in the present volume, may be obtained from the Executive Office of the N.F.P.A.

Every member of the N.F.P.A. in good standing in January 1938 received a copy of this book without charge, as Part II of the January Quarterly. Non-members or members desiring extra copies may obtain them from the N.F.P.A. Executive Office, 60 Batterymarch Street, Boston, at $1.50 each.

A.D.T.



A Nation-wide Organization Engaged Exclusively in Protecting Lives and Property

The fact that A.D.T. is a nation-wide organization, with resources and facilities unequalled in the field of protection service, with practical experience accumulated during the long years of its successful performance, under all possible conditions and in all types and sizes of localities and risks—these are important factors contributing directly to the efficiency of A.D.T. protection services.

A.D.T. maintains the largest research laboratory of its kind, where skilled engineers and technicians are constantly searching and experimenting to improve the science of fire and burglary protection. The benefits constantly flowing from this work are enjoyed by all Central Station organizations of the A.D.T. System throughout the country.

The extent of A.D.T. activities and the knowledge gained from its broad experience have enabled the A.D.T. organization to cope with every emergency—to carry on through wars, floods and storms, in good times and in bad.

As a nation-wide organization, A.D.T. is able to effect substantial economies and to provide through each of its Central Stations the highest standard of modern protection service at the lowest possible cost to subscribers.

A.D.T. Central Station Services are available in 350 communities throughout the country. In communities where A.D.T. Central Station service is not available, the protection system on the subscriber's premises may be installed to give the alarm locally or connected direct to the fire department.

Three such A.D.T. fire protection services are available: Aero Automatic Fire Alarm Service, which automatically detects fire *when it starts* and automatically summons the fire department; Waterflow Alarm Service (for sprinklered properties) which automatically summons the fire department the instant a sprinkler head opens; Manual Fire Alarm Service, including fire alarm boxes on the subscriber's premises for transmitting alarms manually.

A. D. T. ELECTRIC PROTECTION SERVICES

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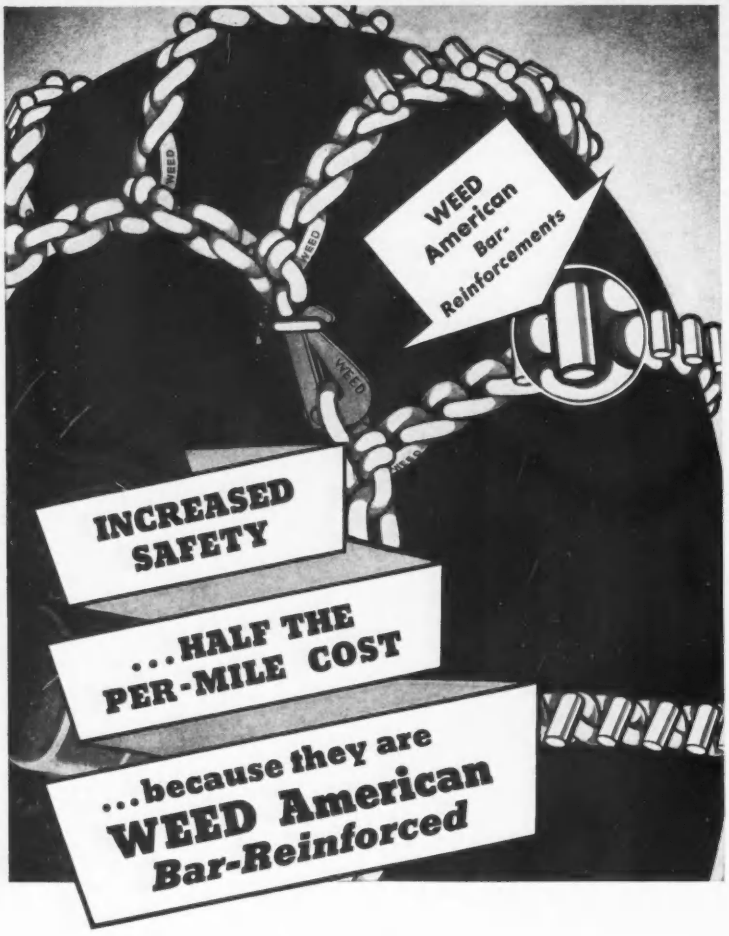
Central Station Offices in all principal cities.

A·D·T

A NATION-WIDE PROTECTION SERVICE AGAINST FIRE, BURGLARY AND HOLDUP



● You get more than twice the safe mileage for your money in WEED American Bar-Reinforced Tire Chains.

WEED American double-welded Bar-Reinforcements on cross chains check skids — forward, backward and side skids. They also provide twice the metal to wear through. Metal is "Weedalloy" — tough, wear-resisting, especially developed for WEED Tire Chain use. Side chains are welded and case-hardened for extra long wear.

Cut chain cost per mile with WEED American Bar-Reinforced Tire Chains.

SEND FOR FREE CHART

● Tells how proper installation increases chain mileage 25% to 50%. Send postcard for yours.

AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT, CONNECTICUT
In Business for Your Safety

WEED WEED American *Bar-Reinforced* TIRE CHAINS

Licensed to manufacture and sell Bar-Reinforced Tire Chains under United States and Canadian Letters Patent: American Chain & Cable Company, Inc.; The McKay Co.; The Hodell Chain Co.; Pyrene Mfg. Co.; Dominion Chain Co., Ltd.; and Pyrene Mfg. Co. of Canada, Ltd.

Stamp Issue Honoring Fire Department

THE Panama Fire Department has received a distinctive honor from the Republic of Panama on the occasion of the fiftieth anniversary of the Fire Department's organization. A set of postage stamps, consisting of nine denominations in various attractive colors has been issued depicting the history of the department. These stamps are reproduced above. At the upper right hand corner is a portrait of Chief Juan A. Guizado, the present commander of the Panama Fire Department. In addition to portraits of fire department officials there are stamps showing one of the pumpers used by the department, a firemen's monument, and a fire scene. The three lower stamps are for air mail use.

VITAGUARD

Fire Alarm System for Volunteer Fire Departments

The four essential elements of the simplest and most effective fire alarm system are illustrated in this diagram.

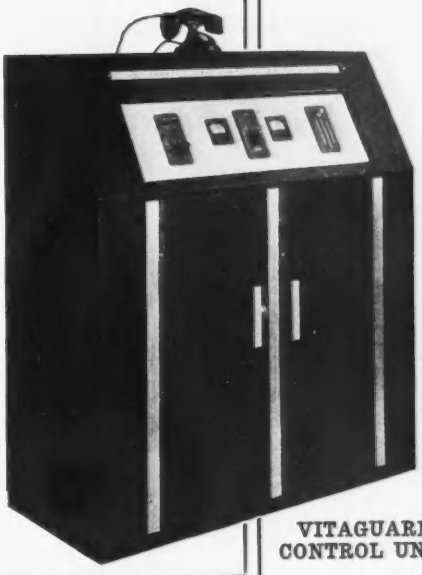
1. **FIRE ALARM BOXES.** A Vitaguard box when operated transmits four complete repetitions of its location number, which automatically sounded by the public alarm, directs the firemen to the scene of fire.

2. **PUBLIC ALARM.** The Diaphone compressed air horn is the most powerful sound producing device yet applied to fire alarm service. It has great sound penetration, a distinctive tone, and the ability to sound fast coded signals in clear, sharp blasts. There is no lag in the signal, the full volume of sound is instantly emitted.

3. **CONTROL UNIT.** This unit includes a recording register, code signal transmitter, storage battery, rectifier, protective and testing equipment, and line terminals. The batteries are automatically maintained in a fully charged condition. All instruments are automatically wound.

4. **CIRCUIT.** The simple closed metallic circuit consists of one wire attached to public alarm and control unit at the fire station, connects with all fire alarm boxes and returns to fire station. The system may include from one to forty boxes.

PUBLIC ALARM
Diaphone Horn
Projecting Above Roof



VITAGUARD
CONTROL UNIT

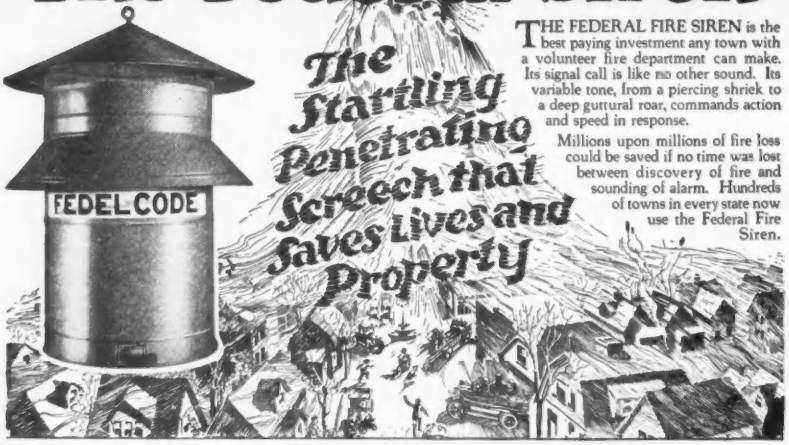
Outstanding Features are — Simplicity . . . Low Initial and Maintenance Costs . . . Rugged Construction . . . Automatic Operation of Alarm Equipment . . . May be Installed by Local Electrician

Write for complete catalogue

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

The Federal Siren



THE FEDERAL FIRE SIREN is the best paying investment any town with a volunteer fire department can make. Its signal call is like no other sound. Its variable tone, from a piercing shriek to a deep guttural roar, commands action and speed in response.

Millions upon millions of fire loss could be saved if no time was lost between discovery of fire and sounding of alarm. Hundreds of towns in every state now use the Federal Fire Siren.

THE FEDERAL VERTICAL SIREN

● Federal engineers have designed a siren to distribute sound in a wide range in all directions—Rugged in construction to withstand all kinds of abuse—Entirely weatherproof housing—Finished in Red Duco or Aluminum—Withstands sleet, rain, hail and dust storms—Equipped with special high speed, ball bearing motor—Approved by the National Board of Fire Underwriters—Used in Many Villages, Towns and Cities.

WRITE FOR BULLETIN NO. 55

FEDERAL ELECTRIC COMPANY, 8717 So. State St., Chicago

1 GALLON—DUPLEX PUMP

"CAPTAIN"- FYR-FYTER

AN IDEAL EXTINGUISHER FOR VOLUNTEER FIRE DEPARTMENTS

Here is the equivalent of four 1-quart extinguishers built into one thus making this large quantity of vaporizing liquid available without running for another extinguisher when more than the average size blaze is encountered. This is but one of the complete line of Fyr-Fyter Extinguishers each of which have exclusive merits which stamp them as superior.

DEALERS WANTED

If you are interested in adding to your income by spare time work or in building a permanent business for yourself without investment in stock, fixtures, etc., write for our new Dealer's Plan to

FYR-FYTER COMPANY
Dept. 20-26 DAYTON, OHIO

Here's Easy Way to Join the Volunteer Firemen's Section

National Fire Protection Association

THE MEMBERSHIP plan for the Volunteer Firemen's Section is designed to give every member of a fire company advantages of membership in the National Fire Protection Association (International), long known as a clearing house of authoritative fire fighting and fire prevention information. The fire company or department, as a member, receives at its headquarters a complete set of the many interesting N.F.P.A. publications as issued, including the profusely illustrated *Quarterly* magazine. In addition and without additional cost, the magazine VOLUNTEER FIREMEN is sent to the home addresses of 20 firemen each month. Fire department membership in the N.F.P.A. costs only $10 per year. If more than 20 firemen want the magazine, an additional 50 cents apiece should be sent in for each man in excess of 20.

PERHAPS the simplest way to finance N.F.P.A. membership is to vote the annual dues from the company treasury. However, because N.F.P.A. membership is a recognized educational activity, many fire departments subscribe for their men with money from the regular fire department appropriation. Other departments collect 50 cents from each man who is to receive VOLUNTEER FIREMEN until at least the minimum N.F.P.A. membership fee of $10 is reached.

BECAUSE the National Fire Protection Association is widely known as a source of information vital to progressive fire departments, many companies and departments find that outsiders, either individuals or civic organizations interested in the department, will contribute all or part of the membership fee.

All that is necessary for N.F.P.A. membership is to send in the annual dues ($10 for a department of 20 men or less) with names and addresses of firemen who are to receive VOLUNTEER FIREMEN.

NEW CATALOGUES

This department is for the convenience of readers who wish to be advised of new products or services in the fire field. When writing for catalogues please mention VOLUNTEER FIREMEN.

American-Marsh Pumps, Inc., Battle Creek, Mich. Bulletin No. 75 (Edition No. 4). Data on Barton Pumps.

W. S. Darley and Co., 2810 Washington Blvd., Chicago, Ill. 100-page catalogue "Everything for Fire Departments."

Federal Electric Co., 8717 South State St., Chicago, Ill. Bulletin No. 55. Complete details of Federal sirens.

Elkhart Brass Manufacturing Co., 1302 West Beardsley Ave., Elkhart, Ind. Illustrated folder describing Mystery Fog Nozzle.

The Fyr-Fyter Co., Dayton, Ohio, Four-page illustrated leaflet, describing 5-gallon farm fire extinguisher (new shape hand pump type with antifreeze charge).

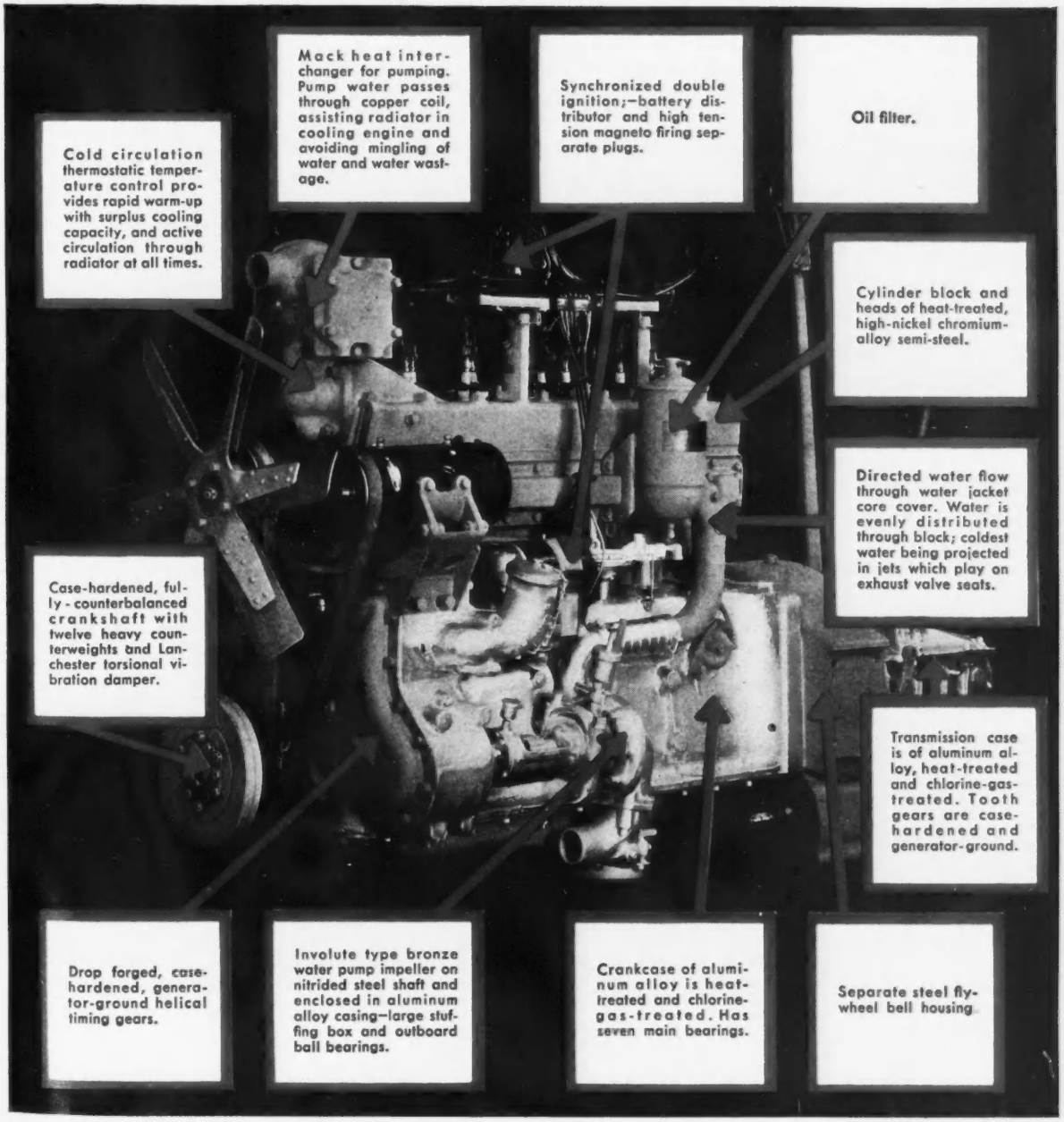
Gamewell Co., Newton Upper Falls, Mass. "Vitaguard," a manual, 40 pages. A complete description of the Vitaguard fire alarm system for volunteer fire departments and industrial plants.

Homelite Corp., 62 Riverdale Ave., Port Chester, N. Y., 4 page, 2 color bulletin describing low cost portable floodlighting plant for fire departments.

AN EXCLUSIVE Mack ADVANTAGE

Thirty-eight years of practical engineering in heavy, high-speed commercial trucking! Mack is the *only* manufacturer to bring this valuable advantage to the fire apparatus field.

Mack-built engines for fire apparatus, plus the most efficient chassis and pumping units ever developed, provide the perfect fire-fighting combination. And these sturdy, six-cylinder powerplants have many exclusive features which assure greatest reliability, utmost durability and widest margins of safety. No wonder the leading fire departments everywhere rely on Mack!


Mack heat interchanger for pumping. Pump water passes through copper coil, assisting radiator in cooling engine and avoiding mingling of water and water wastage.
Synchronized double ignition;—battery distributor and high tension magneto firing separate plugs.
Oil filter.
Cold circulation thermostatic temperature control provides rapid warm-up with surplus cooling capacity, and active circulation through radiator at all times.
Cylinder block and heads of heat-treated, high-nickel chromium-alloy semi-steel.
Directed water flow through water jacket core cover. Water is evenly distributed through block; coldest water being projected in jets which play on exhaust valve seats.
Case-hardened, fully-counterbalanced crankshaft with twelve heavy counterweights and Lanchester torsional vibration damper.
Transmission case is of aluminum alloy, heat-treated and chlorine-gas-treated. Tooth gears are case-hardened and generator-ground.
Drop forged, case-hardened, generator-ground helical timing gears.
Involute type bronze water pump impeller on nitrided steel shaft and enclosed in aluminum alloy casing—large stuffing box and outboard ball bearings.
Crankcase of aluminum alloy is heat-treated and chlorine-gas-treated. Has seven main bearings.
Separate steel flywheel bell housing.

MACK TRUCKS, INC., *FIRE ENGINE DIVISION*, NEW YORK, N.Y.

These 6 STAR FEATURES CAN BE FOUND ONLY IN THE ELKHART Mystery FOG NOZZLE

No other nozzle has them all!

1. Rubber bumper insures continued effectiveness as fog nozzle . . . protects against blows which may bend barrel and render it useless.
2. Smooth action; will not bind or jam.
3. Complete shut-off; will not leak.
4. No holes to clog.
5. No engagement screw to fall out and cause loss of nozzle control.
6. Leak-proof packing compensates for wear. These features are important.

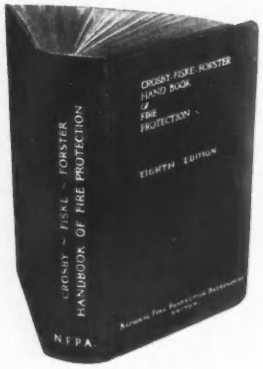
For your own protection, see that the fog nozzles you buy are genuine Elkhart Mystery Nozzles.

MADE in SIX SIZES for ALL CONDITIONS.

Write today for illustrated folder.

ELKHART BRASS MFG CO
ELKHART INDIANA

OVER 5000 N.F.P.A. HANDBOOKS SOLD



Eighth Edition
1154 pages; 4¼ x 6½
242 illustrations, 161 tables
Handsomely bound
$4.50 postpaid

Write for descriptive folder

National Fire Protection Association

60 Batterymarch Street, Boston

Bring Home $10.00 Easy Money

Pyrene Prize Letter Contest Pays for Stories of Good Work Done by Firemen With Extinguishers

FIREMEN know better than anyone else what fire extinguishers can do and that is why the Pyrene Prize Letter Contest is so popular. You may know of a case where an extinguisher saved a life or made a good stop; just tell the facts your own way. Having won a previous prize does not bar you from making another entry. The contest is sponsored jointly by the Pyrene Manufacturing Company of Newark, N. J., and VOLUNTEER FIREMEN.

FIRST PRIZE — $10.00

KENNETH M. HAYES

Fire Department, Groveton, N. H.

Saved Fifty Hogs!

"On Monday, November 22, 1937, at 4:15 P.M. we were called for a farm fire. The farm was in Guildhall, Vermont, and is a four mile run from our station. When we arrived we were surprised to find four men with two extinguishers holding the fire to a large structure connecting the house and barn. The ground floor of the building housed 50 full-grown hogs, while on the second floor several cords of wood had been piled to dry. The fire was in the partitions and was being held there with the two extinguishers. While one extinguisher was used on the blaze, the other was being recharged. It took us an hour to move the wood and completely extinguish the fire with a booster line. There is no doubt that the two extinguishers saved several thousand dollars and the lives of 50 hogs."

SECOND PRIZE — $3.00

L. J. JONES, *Assistant Chief*

Fire Department, Duluth, Minn.

Stops Tank Truck Fire

"Several years ago on a rainy morning with lightning striking all around we received a call from an oil company that had several large gasoline storage tanks on their premises. On the grounds close to the storage tanks were several loaded tank wagons, one of which was aflame. On approaching the burning tank wagon we noticed the people in the vicinity were all running away and pointing to what they presumed was going to be a terrible fire and explosion.

"I had my driver take a foam extinguisher over to the tank wagon and use it on the fire while I telephoned for a chemical car. When I stepped out of the nearby telephone booth, expecting to see everything ablaze, to my astonishment as well as that of many others, the fire was extinguished. This actual experience convinced me of the true value of extinguishers."

THIRD PRIZE — $2.00

C. B. JARVIS, *Chief*

Fire Department, Wynne, Ark.

Buys More Extinguishers After Fire

"With two other firemen I work for an automobile agency about two blocks from my home. About 8 o'clock one morning last November, while at home I received a call stating that the repair shop of the agency was on fire. I arrived at the same time as our fire truck. One of the firemen working in the agency met me at the door stating that the fire was out.

"An automobile being repaired had caught on fire and ignited a tub of tractor fuel that was being used to wash the motor. The flames were shooting up around the front of the car about ten feet high. The firemen had grabbed a 2½-gallon foam extinguisher that was located in the center of the shop and easily extinguished the flame with little damage to the automobile.

"The owner of the shop seeing the efficient and fast work done with this extinguisher immediately purchased two more. This extinguisher prevented a possible $50,000 loss."

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.
2. Letters are to describe actual experiences where an approved fire extinguisher of any make has saved lives or property.
3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.
4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experience.
5. Only one letter may be submitted each month.
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.
7. Letters received after the 8th of the month will be judged in following month's competition.
8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.
9. Address contest letters to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

1938 CHAMPION Fire Apparatus

UNDERWRITER APPROVED
$950 to $1569
Not Including Chassis

Unretouched Photograph

Style has the spotlight these days in the new Champion Fire Apparatus on all the new model truck chassis. Streamlined style, and glistening red finish may be EVERYTHING the public sees when your Fire Apparatus is speeding to a fire, but in your own mind the many features built into Champion Fire Apparatus are even more important. Features DESIGNED into them from the drawing board up, from the laboratory out. Qualities that will show in hard Fire Dept. service during the truck's long life, and (be even more evident in the lower fire loss records of your department and the lower insurance rates in your community.)

Style and appearance in Fire Apparatus is only one side of the story. Clothes may make the man, but streamlines alone cannot make efficient, dependable Fire Apparatus. In the new Champions they dress up the underlying stamina, the values and the character beneath the surface.

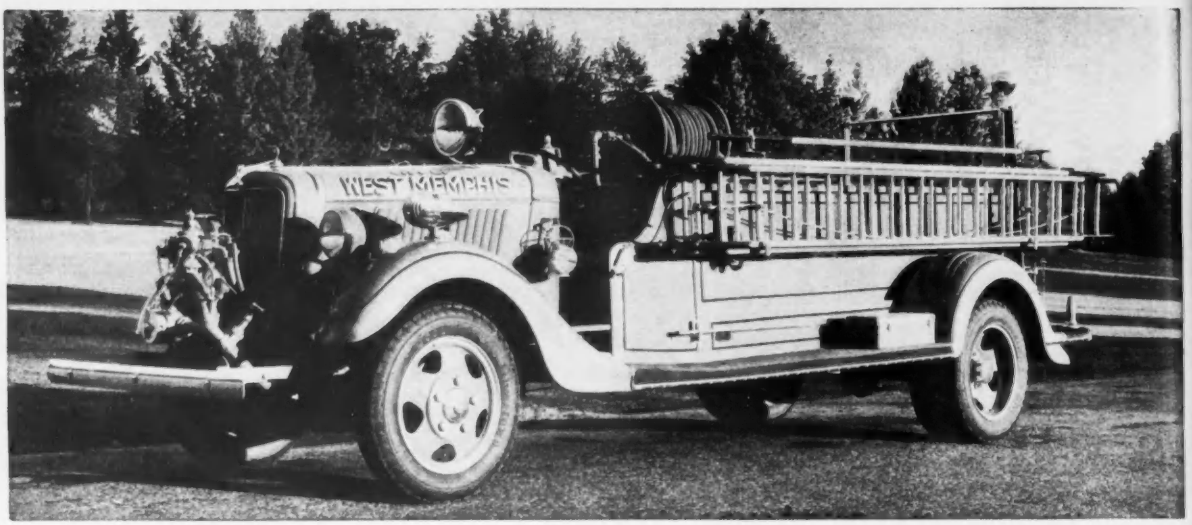
You can accept these beautiful, powerful, fast, dependable Champions—either on faith, based on the character and reputation of W. S. Darley & Co., in business for 30 years. Or on a careful study of their modern engineering. Or, on both, keeping in mind that Champions are America's fastest selling Fire Apparatus. Write Chiefs who command Champions, let them tell you in their own words, man-to-man, about Champion's superior performance and stamina.

Write us for the Champion Specifications, describing the construction that makes Champion Fire Apparatus every bit as good as they look.

Write for The New 100 Page Catalog of Apparatus, Pumps, Fire Equipment

W. S. DARLEY & CO.
2810 Washington Blvd., Chicago, U. S. A.

A Friendly Firm—In Business for 30 Years



PLAN TO INCLUDE BETTER FIRE PROTECTION IN YOUR 1938 BUDGET

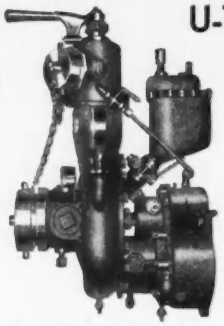
Now is the time when most cities, towns and villages are considering 1938 expenditures — making up annual budgets. An ideal time for you to get money appropriated for better fire apparatus—before that money is spent for less important things.

And thousands of Chiefs have found it easy to sell the "powers that be" on Barton Fire Pumps. Nor is it hard to understand why, for Barton Pumps enable you to have the FINEST, MOST DEPENDABLE of fire-pumping equipment, YET SAVE YOUR COMMUNITY HUNDREDS OF DOLLARS IN FIRST COST.

Real Economy With BARTON Pumps

First, because of simplified design, a Barton Centrifugal Pump costs MUCH LESS than other type apparatus. Second, because of Front-Mounting, a special expensive fire truck is NOT REQUIRED. Any size Barton Pump can be used on a standard truck and completely installed WITHOUT A SINGLE CHASSIS CHANGE—total cost but a few dollars for labor.

How can we best help you present this wonderful economy story to your community? Mail Coupon below and we will send you literature explaining Barton Pumps thoroughly. Or would you prefer to have our nearest representative call and talk to your people? No obligation, of course.



U-Type, built in 350, 400, 500 and 600-gallon sizes.

U-TYPE—*Gear Drive*

Shown above is a Barton U-Type Fire Pump, Front-Mounted and ready for service. Every U-Type Pump is regularly equipped with BUILT-IN GEAR DRIVE which permits truck motor to operate at approximately ONE-HALF pump speed. With pump wide open and discharging against 250 pounds pressure, the motor loafs along under no strain. All sizes UNDERWRITERS' TESTED—all automatically primed. The finest centrifugal fire pumps on the market.

F-TYPE—*Direct Drive—Low Price*

An amazing development for towns and villages which require relatively large capacity pumpers but have only limited amount of money available. They incorporate every U-Type feature and refinement except Gear Drive. All sizes UNDERWRITERS' TESTED — all automatically primed.

Also smaller Barton Fire Pumps, both centrifugal and rotary, AT STILL LOWER PRICES.

F-Type, built in 400, 500 and 600-gallon sizes.

MAIL THIS COUPON TODAY

AMERICAN-MARSH PUMPS INC.

BATTLE CREEK, MICHIGAN . . *PUMPS AND PUMPS ONLY SINCE 1873*

Please send complete information on:

- ☐ Barton U-Type Fire Pumps, Bulletin 75
- ☐ Barton F-Type Fire Pumps, Bulletin 95
- ☐ Smaller Fire Pumps at still Lower Prices
- ☐ Have your nearest Representative call

NAME.....

ADDRESS.....

Records show that more than nine out of every ten accidents are side-swipes. Head-on accidents are the exception; side-swipes the rule. A FRONT-MOUNTED BARTON FIRE PUMP IS OUT OF THE DANGER ZONE. With thousands of Barton Pumps in service, we know of only one ever damaged by collision. FRONT-MOUNTING = CONVENIENCE + ECONOMY + GREATER SAFETY.

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